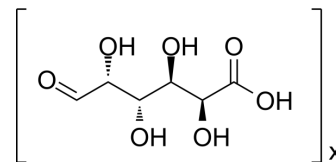


Polygalacturonic acid

Cat. No.:	HY-N6613
CAS No.:	25990-10-7
Molecular Formula:	(C ₆ H ₁₀ O ₇) _x
Target:	Others
Pathway:	Others
Storage:	4°C, protect from light * In solvent : -80°C, 6 months; -20°C, 1 month (protect from light)



SOLVENT & SOLUBILITY

In Vitro	H ₂ O : 5 mg/mL (ultrasonic and warming and heat to 60°C)
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BIOLOGICAL ACTIVITY

Description	<p>Polygalacturonic acid (Galacturonic acid polymer) is transparent colloid, is a major component of the cell wall. Polygalacturonic acid can be used to prepare silver nanoparticles (AgNPs), as an antioxidant and anti-inflammatory that protect cells from destructive effect of elevated ROS and accelerate wound healing. Polygalacturonic acid nanoparticles also displays anti-bacterial activity^{[1][2]}.</p>								
In Vitro	<p>Polygalacturonic acid can be used to format a durable hydrogel, to prolong the effect of drugs. Polygalacturonic acid hydrogel/hyaluronate, conjugated Ibuprofen (HY-78131) for example, prevents epidural fibrosis, the severe scar tissue adhesion of laminectomized male adult rats, and increases the efficiency of local inflammation control and reduces the side-effect of Ibuprofen^[1].</p> <p>Polygalacturonic acid hydrogel/hyaluronate (PGA-HA) (2%, 200 μL; 24 h) shows low cytotoxicity on L929 fibroblasts^[1]. Polygalacturonic acid (PGA) preparing (Ag-PGA/HA)-PVA nanoparticles, shows anti-bacterial activity against gram-positive bacterial strains; Bacillus Subtilis and Staphylococcus Aureus, as well as gram-negative bacterial strain; Escherichia Coli^[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>								
In Vivo	<p>Polygalacturonic acid (external application; 14 d) enhances a quick healing of wound infection in albino rats^[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Animal Model:</td> <td>Full thickness wound model in albino rats (60-day-old, 180 g)^[2]</td> </tr> <tr> <td>Dosage:</td> <td>Ag-Polygalacturonic acid/hyaluronic acid nanoparticles</td> </tr> <tr> <td>Administration:</td> <td>Applied on dorsal muscle fascia; cleaned the wound daily with alcohol; for 14 days</td> </tr> <tr> <td>Result:</td> <td> <p>Resulted no sign of abscess formation or hypertrophic scars both in the early phase; 5th day or in the final phase; 14th day, respectively.</p> <p>Showed significant wound healing from day 8 while treated with (Ag-PGA/HA)-PVA nanofiber and blank (PGA/HA)-PVA nanofiber and induced epithelization on day 14.</p> </td> </tr> </table>	Animal Model:	Full thickness wound model in albino rats (60-day-old, 180 g) ^[2]	Dosage:	Ag-Polygalacturonic acid/hyaluronic acid nanoparticles	Administration:	Applied on dorsal muscle fascia; cleaned the wound daily with alcohol; for 14 days	Result:	<p>Resulted no sign of abscess formation or hypertrophic scars both in the early phase; 5th day or in the final phase; 14th day, respectively.</p> <p>Showed significant wound healing from day 8 while treated with (Ag-PGA/HA)-PVA nanofiber and blank (PGA/HA)-PVA nanofiber and induced epithelization on day 14.</p>
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REFERENCES

- [1]. Lin CY, et al. Ibuprofen-conjugated hyaluronate/polygalacturonic acid hydrogel for the prevention of epidural fibrosis. J Biomater Appl. 2016 May;30(10):1589-600.
- [2]. El-Aassar MR, et al. Wound healing of nanofiber comprising Polygalacturonic/Hyaluronic acid embedded silver nanoparticles: In-vitro and in-vivo studies. Carbohydr Polym. 2020 Jun 15;238:116175.
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Caution: Product has not been fully validated for medical applications. For research use only.

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